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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/629,088	Applicant(s) BRAUDAWAY ET AL.
	Examiner JAMARES WASHINGTON	Art Unit 2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 November 2008.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3,5-7 and 19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-3,5-7 and 19 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/95/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Amendment

Amendments and response received November 19, 2008 have been entered. Claims 1-3, 5-7 and 19 are pending in this application. Claims 8-12, 14 and 16 have been cancelled. Claim 19 has been added by this amendment. Amendments and response are addressed hereinbelow.

Claim Objections

1. Claim 1 is objected to because of the following informalities:

In claim 1 line 5, the limitation recites "...where the color second gamut is out of gamut of said printing device...". The claim should read "...where the second color gamut is out of gamut of said printing device..." .

Appropriate correction is required.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas Mennie et al (US 672442 B1) in view of Roger David Hersch et al (US 7491424 B2) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 1, Mennie et al discloses a method of deterring document counterfeiting comprising:

providing at least one authentic hard-copy document (Fig. 21 "Learn Mode" step 2114), color scanning a plurality of candidate documents to form scanned documents (column 2 lines 66 through column 3 line 3) each having a two-dimensional array of image pixels for each candidate document (Fig. 22 numerals 2214 and 2216, "X" and "Y" dimensions);

searching each pixel array to identify said second color mark ("... scanning full color characteristics of a document, processing data corresponding to the characteristics scanned..." at column 3 lines 16- 19; Indicating a color characteristic determines the evaluation of subsequent documents. Searching "to identify said second color mark" is not given patentable weight as "to identify said second color mark" is merely intended use of the apparatus used to scan the documents).

Mennie et al fails to teach each of said authentic hard-copy document printed including a first set of colors within a first color gamut of a printing device and at least one mark printed using a second color that is within a second color gamut, where the [second color] gamut is out of gamut of said printing device, said second color being printed using a custom-color ink.

Hersch et al, in the same field of endeavor of document security using color to determine authenticity (Abstract), teaches a first set of colors within a first color gamut of a printing device

and at least one mark printed using a second color that is within a second color gamut (Col. 2 lines 42-46 wherein several standard inks, forming a standard color gamut are combined with a metallic ink, which creates a second color gamut outside that of the typical "standard" color gamut) where the second color gamut is out of gamut of said printing device (The second color gamut formed by introducing the metallic ink is outside that of the standard ink color gamut. If the second color gamut were in gamut, there would not be a need for the extra colorant). Hersch teaches that said out of gamut color is a custom color ink (Metallic or fluorescent specialty inks are custom color inks as they are not reproducible by standard process colors cyan, magenta, yellow and black).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of discriminating authentic documents from counterfeit documents as disclosed by Mennie et al to utilize the teachings of Hersch et al where an authentic hard-copy document printed includes a first set of colors within a first color gamut of a printing device and at least one mark printed using a second color that is within a second color gamut, where the second color gamut is out of the gamut of said printing device, having at least three ink colors because, in respect to security documents, non-standard inks such as metallic are already used for protecting security documents and valuable articles such as banknotes, tickets, etc. (Col. 2 lines 13-16). The modification of Mennie et al to incorporate the teachings of Hersch et al would have constituted the mere arrangement of old elements with each performing the same function it had been known to perform, the combination yielding no more than one would expect from such an arrangement.

Regarding the claim limitation "wherein said out of gamut color produced by said custom color ink is selected from a differential gamut color volume lying outside a printable colors gamut volume of said printing device, but inside both an object color's gamut volume and a gamut of physically realizable colors of a 3-dimensional color space", the claimed subject matter is met when a selected color lies outside the printer's color gamut but inside an object's color gamut since the entirety of an object colors gamut would always lie within the physically realizable colors of a 3-dimensional color space. The object color gamut will be read as the gamut created by adding the new custom ink to the existing printing gamut previously disclosed by Lee. Adding a new colorant to a printing system creates a new gamut. Therefore, Lee teaches wherein said out of gamut color produced by said custom color ink (Col. 17 lines 62-64) is selected from a differential gamut color volume lying outside a printable colors gamut volume (The ink was previously shown to be outside a publicly available printer's gamut) but inside both an object color's gamut volume (The new ink introduced to the system to create the color which is not reproducible by publicly available hardware creates a new gamut when added to the existing gamut of a publicly available printer) and a gamut of physically realizable colors of a 3-dimensional color space (Both gamuts would have to be within the gamut of all realizable colors).

Mennie et al fails to disclose or suggest sorting said plurality of candidate documents into a first group of scanned documents which includes documents identified as having only the first set of colors within said first color gamut, and into a second group of scanned documents having said second color mark within said second color gamut, said scanned documents in said first

group are characterized as counterfeit, and said scanned documents in said second group are characterized as authentic.

Voellmer et al, in the same field of endeavor of discriminating counterfeit documents from authentic documents ("To permit bank notes which the test device detects as being suspected forgeries or unidentifiable to be sorted out separately as early as possible" at column 2 line 10), teaches sorting a plurality of documents into a first group of scanned documents not having said at least one out-of-gamut color mark (Documents not having said at least one out-of-gamut color mark (as rejected above Mennie in view of Lee) are documents found to be counterfeit or forged therefore "Reject pocket 10 disposed in the immediate vicinity of the input pocket is intended for unidentifiable or suspected counterfeit notes which must be subjected to a check by the operator" at column 3 lines 17-20) and into a second group of scanned documents having said at least one out-of-gamut color mark (Documents containing said at least one out-of-gamut color mark are documents found to be authentic therefore Fig. 1 numeral 12 (or 13-15 according to currency type) "output pocket") so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method as disclosed by Mennie et al in view of Lee et al wherein counterfeit documents are discriminated from authentic documents by using an out-of-gamut color mark to involve the process of sorting the documents according to authenticity as taught by Voellmer et al to avoid confusion between the two if the authentic document is to be further examined or determined authentic from the first determination.

Regarding claim 2, Mennie et al discloses the method as recited [in] claim 1, wherein each of said pixels has at least three color pixel values (column 2 lines 4-11).

Regarding claim 5, Mennie et al discloses the method as recited claim 1, wherein the step of providing authentic hard-copy documents' includes providing a plurality of bank checks (Column 5 lines 51-59).

Regarding claim 7, Mennie et al discloses the method as recited [in] claim 1, further comprising employing an authentication test taken from a group of authentication tests consisting of:

gamut color size correspondence; gamut color location correspondence; magnetic number correspondence ("The scanhead(s) 70 may perform magnetic, optical and other types of sensing to generate signals that correspond to characteristic information received from a bill 44) at column 5 lines 62-65, Mennie and column 29 lines 33-47, Mennie);
checking account pattern-of-use exception;
unexpected presence of ultraviolet fluorescing (column 28 lines 23-32, Mennie);
unexpected presence of thermochromic responding;
unexpected presence of laser resonating inks;
unexpected absence of ultraviolet fluorescing;
unexpected absence of thermochromic responding;
unexpected absence of laser resonating inks; and

any combination of these authentication tests. (If one of the claim limitations is met, then the claim limitation as a whole is met).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mennie et al in view of Hersch et al and Voellmer et al as applied to claim 1 above, and further in view of John S. Ligas et al (US 5289547).

Regarding claim 3, Mennie et al discloses the method as recited [in] claim 1. Mennie et al fails to teach or suggest wherein the step of color scanning includes employing a colorimeter.

Ligas et al, in the same field of endeavor of document authentication ("The authenticating method of the present invention may be used to authenticate security documents and other articles of commerce" at column 2 lines 58-60), teaches employing a colorimeter ("The means for verification may be by a visual observation or by the use of an instrument such as a colorimeter" at column 10 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of document authentication as disclosed by Mennie to employ a colorimeter as taught by Ligas because a colorimeter is a well-known instrument in the art of image processing for comparing or matching colors.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B1) in view of Roger David Hersch et al (US 7491424 B2) and

Christian Voellmer et al (US 6439395 B1) as applied to claim 1 above, and further in view of
Osama M. Alattar (US 2002/0126873 A 1).

Regarding claim 6, Mennie discloses the method as recited [in] claim 1, further comprising:

noting correct pixel locations of said at least one color in said authentic document (Fig. 21, numeral 2106. Determining the bill's orientation gives the location information of the indicia or "color" patch to be sensed as explained in column 43 lines 54-60);

determining particular pixel locations (Fig. 23a numeral 2305) of said at least one color (see rejection of claim 1 above. The object for determining authenticity is determined to be a color outside the gamut of a conventional printer); and

forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, and said scanned documents in said fourth group being possibly authentic (see rejection of claim 1 pertaining to document sorting according to authenticity).

Mennie fails to disclose determining particular pixel locations in each of said second group of scanned documents.

Alattar, in the same field of endeavor, teaches determining an additional characteristic from the group of possibly authentic documents ("A detector 34...detects the component colors"

at paragraph [34]. "A signature is determined for a subject spot color based on the color components" at paragraph [35]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct a second detection operation after detecting a first characteristic of authenticity as taught by Alattar where the component colors are first detected and a signature is determined according to the component colors with the method disclosed by Mennie et al in which documents are discriminated according to authenticity because the additional detection would provide heightened security for the detection of authentic documents.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas Mennie et al (US 672442 B1) in view of Roger David Hersch et al (US 7491424 B2), Eric R. Lee et al (US 6786954 B1) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 19, Mennie et al discloses the method as recited in claim 1. Mennie et al fails to explicitly disclose further comprising employing an authentication test taken from a group of authentication tests consisting of:

- checking account pattern-of-use exception;
- unexpected presence of thermochromic responding;
- unexpected presence of laser resonating inks;
- unexpected absence of ultraviolet fluorescing;
- unexpected absence of thermochromic responding;
- unexpected absence of laser resonating inks; and

any combination of these authentication tests.

Lee, in the same field of endeavor of document security using color to determine authenticity ("The present invention also relates to an ink which can be used for labeling an object (for example, a document or other object) with identifying markings which can be rapidly verified as authentic and which are highly resistant to counterfeiting" at column 1 lines 15-19; Lee), teaches ultraviolet fluorescing, thermochromic responding inks, among other techniques are traditional government and corporate anti-counterfeiting technology techniques (Col. 1 lines 32-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of deterring document counterfeiting comprising color scanning a plurality of candidate documents to identify a second color mark outside a first color gamut of a printing device as disclosed by Mennie et al to employ an authentication test taken from a group of authentication tests consisting of checking account pattern-of-use exception, unexpected presence of thermochromic responding, unexpected presence of laser resonating inks, unexpected absence of ultraviolet fluorescing, unexpected absence of thermochromic responding; unexpected absence of laser resonating inks, and any combination of these authentication tests as taught by Lee because these are well known traditional government and corporate anti-counterfeiting technologies which make the replication of the original document impossible without access to highly expensive printing hardware, or the authorization to purchase restricted raw materials. The use of the well known techniques would have been a predictable modification because of the known advantages listed above. A person of ordinary

skill in the art would recognize that it would improve the method as disclosed by Mennie in the same way.

Response to Arguments

7. Applicant's arguments filed November 19, 2008 have been fully considered but they are not persuasive.

Applicant's remarks: Voellmer et al. explicitly discloses that "one can test security threads or other elements such as adhesive strips extending transversely to the bank note" (Col. 1, lines 35-38) and "[r]eject pocket 10 disposed in the immediate vicinity of the input pocket is intended for unidentifiable or suspected counterfeit notes which must be subjected to a check by the operator" (Col. 3, 17-20). Thus, it is clear that Voellmer et al. does not disclose, suggest or teach sorting scanned documents into a first group with a first set of colors and a second group having a second color. Rather, Voellmer et al. tests the bank notes for "security threads or other elements such adhesive strips" to determine whether the bank note is a counterfeit and subsequently physically places the note in a bid for further inspection by an operator. Voellmer et al. does not disclose or suggest sorting scanned documents based on the presence or absence of an out of gamut color, where the out of gamut color is out of gamut for the particular printing device which printed the document being scanned.

Examiner's response: Voellmer's method of authentication is irrelevant in light of the combination of prior art cited. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Prior art is not limited just to the references being applied, but includes the understanding of one of ordinary skill in the art. The prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. The "mere existence of differences between the prior art and an invention does not establish the invention's nonobviousness." *Dann v. Johnston*, 425 U.S. 219, 230, 189 USPQ 257, 261 (1976).

The gap between the prior art and the claimed invention may not be "so great as to render the [claim] nonobvious to one reasonably skilled in the art." *Id.* In determining obviousness, neither the particular motivation to make the claimed invention nor the problem the inventor is solving controls. The proper analysis is whether the claimed invention would have been obvious to one of ordinary skill in the art after consideration of all the facts. Clearly one of ordinary skill, given the prior art cited, would have reasonably been motivated to combine the teachings to achieve the claimed subject matter. The method of authentication is shown in the rejection of claim 1 as disclosed by Mennie et al and Hersch et al wherein Voellmer modifies the authentication method in that it provides a means for separating the already authenticated documents from the possibly counterfeit documents according to the parameters used to

distinguish the documents. Mennie et al in view of Hersch et al teach the parameters in the form of a method used to distinguish the documents.

Applicant's remarks: In the Office Action, the Examiner does not cite specific prior art as teaching this feature of claim 1, but merely states the "object color gamut will be read as the gamut created by adding the new custom ink to the existing printing gamut previously disclosed by Lee" on page 4. The object color gamut (e.g., the gamut of the document to be scanned), however, is broader than the color gamut of the printing device, because the "differential gamut color volume [lies] outside a printable colors gamut volume of said printing device" (claim 1). Consequently, even if the color gamut of the printing device described in Lee et al. is broadened with a custom ink (e.g. a custom ink cartridge is used by the printer), nothing has been cited or found in Lee et al. that teaches or suggest the entire gamut of physically realizable colors would be covered by the addition of using a custom ink in the printer. Since the entire color gamut of physically realizable colors is not taught to be reproducible by Lee et al., the printer taught by Lee et al. is not capable of printing "said out of gamut color produced by said custom color ink is selected from a differential gamut color volume lying outside a printable colors gamut volume of said printing device, but inside both an object colors gamut volume and a gamut of physically realizable colors of a 3-dimensional color space." For this reason, among others, the object color gamut cannot be read as the gamut created by adding the new custom ink to the existing printing gamut previously disclosed by Lee et al.

Examiner's response: Although Examiner has changed grounds of rejections with regard to the above argument, the same principle holds true for the newly cited art. This principle being that nothing in the claim "clearly" sets forth the claimed object's color gamut volume or what applicant deems as the gamut of physically realizable colors of a 3-dimensional color space. Absent any clarification of the range of the above gamuts, again Examiner construes the object's color gamut as the gamut created after adding the custom color ink, which is outside the printer's standard color gamut (CMYK) but within the "gamut of physically realizable colors" by a human observer (as stated in the arguments of the rejection of the Office Action dated August 19, 2008). The color chosen would inherently be in the object's color gamut as this gamut is constructed utilizing the "custom color" in addition to the CMYK standard inks.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMARES WASHINGTON whose telephone number is (571) 270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571) 272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

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March 9, 2009